THE INFLUENCE OF INTELLECTUAL CAPITAL ON THE COMPANY FINANCIAL PERFORMANCE
(Case Study on Basic Industry and Chemical Sector Listed in Indonesian Stock Exchange (IDX) on Period 2011-2015)

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Abstract: This research aims to determine the relationship between company intellectual capital and company performance. The company's intellectual capital is measured by three indicators, namely value added human capital (VAHU), structural capital value added (STVA), and value added physical capital (VACA). Meanwhile, company performance is measured by Return on Assets (ROA). The object of this research is the Basic Industry and Chemical Sector companies. The data used in this study is secondary data obtained from IDX for the 2017-2021 period. The research method was carried out using descriptive analysis and multiple linear regression analysis. The total research population was 65 companies. Sampling was carried out using a purposive sampling method so that only company data that met the criteria was processed. The results of this research show that STVA and VACA have a positive and significant effect on company performance, while VAHU has an insignificant negative effect.

Keywords: intellectual, capital, ROA

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1. Introduction

The manufacturing industry is a sector that has a huge influence on the Indonesian economy. In the period 2016 to 2021, the contribution of the manufacturing industry to Indonesia's Gross Domestic Product (GDP) ranks first compared to other industries. Until 2021, the contribution of the manufacturing industry will be 19.25 % of GDP (BPS Indonesia, 2022).
However, based on data from *the Industrial Development Report 2022 (UNIDO, 2022)* released by the United Nations Industrial Development Organization (UNIDO), Indonesia is in 40th place out of a total of 152 countries in the *Competitive Industrial Performance* (CIP) Index ranking in 2019. When compared with last year, this ranking has dropped from previously Indonesia was ranked 38th out of 150 countries. . Regarding this, Indonesia is in the *Upper Middle Quintile* category, ranking higher than the Philippines (43rd) and Vietnam (43rd), but still far below Singapore which is in 9th position, Malaysia 23rd and Thailand 24th. Meanwhile, India and Vietnam were originally below Indonesia, but are now ranked higher (India ranked 38th, Vietnam ranked 36th). The CIP index report reflects that the Indonesian manufacturing industry does not yet have high competitiveness.

Company profitability is a measure used by investors as a basis for the decision-making process and is a goal of competitive advantage (Wijayanto et al., 2019) . To be able to increase company profitability, the manufacturing industry must be able to create products that are of high value and beneficial to society. This means companies must develop products and services that consumers want and need, which leads to new technologies and new products. This can be achieved if the company has a competitive advantage. (YS Chen, 2008) defines a company's competitive advantage as a condition where competitors are unable to replicate the competitive strategy implemented by the company, competitors are also unable to obtain the benefits obtained by the company through its competitive strategy.

Advances in technology and information have caused current economic development to be controlled by information and knowledge, this has brought increased attention to *Intellectual Capital* (Tan et al., 2007) . In Indonesia, this phenomenon began to develop, especially after the emergence of Statement of Financial Accounting Standards (PSAK) No. 19 (revised 2000) concerning intangible assets. According to the Statement of Financial Accounting Standards (PSAK) No. 19, intangible assets are non-monetary assets that can be identified and do not have physical form and are held for use in producing or delivering goods or services, rented to other parties, or for administrative purposes (IAI, 2007).

Intellectual Capital (IC) is a very valuable asset in the modern business world. This creates challenges for accountants to identify, measure and disclose in financial reports. Various methods have also been offered to identify and measure IC, one of which is VAIC™ (*Value Added Intellectual Coefficient*) which was constructed by Pulic (1998) to assess company performance. (Kweh et al., 2013) studied 25 software companies and used benchmarking techniques to compare their IC efficiency. In addition, there are several studies that use data envelopment analysis (DEA) to investigate the impact of IC on company efficiency (Habib & Dalwai, 2023; Xu & Liu, 2020) . All these studies corroborate the RBV theory and confirm that companies can gain efficiency by using IC resources as an important driver to improve corporate competitiveness.

RBV theory originated in the 1980s and became more prominent in the 1990s (Barney, 1991; Wernerfelt, 1984) . According to RBV theory, IC is a strategic resource that occupies two-thirds of a company's assets and, when managed well, produces value generation (Grant, 1991) . In addition, several studies explain the relationship between IC and company performance (Bhattacharjee & Akter, 2022; Ur Rehman et al., 2022) . Unique resources, both tangible and intangible, support performance (Habib & Mourad, 2022) .

(Nadeem et al., 2019) found a positive correlation between IC and company performance. (Crupi et al., 2020) confirm the contribution of IC to entrepreneurial strategy. There is also research (Bayraktaroglu et al., 2019) which finds that IC has a direct influence on *firm productivity* . In contrast, applying the same measure, (Sirinuch Nimtrakoon, 2015) found no relationship between IC and market value in ASEAN countries, except in Thailand. (Firer & Mitchell Williams, 2003) did not find a relationship between IC and profitability but observed a positive impact of efficient use of capital on the company's market value. (Maditinos et al., 2011) also found no significant relationship between intellectual capital and financial performance when examining the Greek Stock Market. From these studies, there is a research gap between Intellectual Capital and Company Performance.

The description above is the driving factor for researchers to conduct research with the title "The Influence of Intellectual Capital on Company Performance" in Manufacturing Companies in the basic industrial and chemical sectors listed on the IDX for the 2017-2021 period.

2. Literature Review

Resource Based View Theory (RBV Theory)

Resource Based View (RBV) theory was first pioneered by (Wernerfelt, 1984) . RBV theory views that company resources and capabilities are important for the company because they are the basis of the company's competitive ability and performance. The RBV theory explains how a company can compete with other companies by managing the resources owned by the company in question according to the company's ability to achieve the company's competitive advantage.

Companies can make good use of the resources they have to create something that is an advantage for the company compared to other companies. These advantages can be in the form of good company profitability and good company environmental performance. Several advantages that the company has can help the company compete with other companies. The company's advantages and success in competing with other companies will increase the company's value.

(Barney, 1991) in his article entitled " *Firm Resources and Sustained Competitive Advantage* " explains that company resources help companies improve the efficiency and effectiveness of company operations. To improve performance, companies must be able to efficiently use their exclusive resources/capabilities in a way that allows them to reduce costs, exploit market opportunities and/or neutralize competitive threats (Newbert, 2008). The concept of profit efficiency refers to a company's ability to reduce costs and create greater economic value from its output. In this research, intangible resources are measured by *Value Added Human Capital* (VAHU), *Structural Capital Value Added* (STVA), *and Value Added Capital Employed (VACA)* . These three variables were chosen to measure company performance. In this research, the ROA ratio is used to measure company performance.

Return on Asset (ROA)

According to Riyadi (2006), Return on Assets is a profitability ratio which shows the comparison between profit and total assets. ROA is important for companies because ROA is used to measure a company's ability to generate net profits based on the level of assets owned (Saputra, 2022; Wiranthie & Putranto, 2020). Apart from that, Amelia & Sunarsi (2020) explained that return on assets (ROA) is an indicator that measures a company's success in generating profits. So the greater the ROA, the better the company's performance, because the rate of return is greater. According to Lestari and Sugiharto (2007), the ROA figure can be said to be good if it is greater than 2%. This ratio can be formulated as follows:

$$ROA = \frac{Laba\ bersih}{Total\ Assets}$$

Intellectual Capital

Intellectual capital is an important strategic asset in a knowledge-based economy (Rehman et al., 2011). In general, the elements of intellectual capital are divided into three categories, namely knowledge related to employees (human capital), knowledge related to customers (customer capital or relational capital), and knowledge related only to the company (structural or organizational capital). These three categories form Intellectual Capital (Boekestein, 2006). High Human Capital will be able to encourage increased financial performance. Human capital is a combination of knowledge, skills, innovation and a person's ability to carry out their duties so that they can create value. Structural capital is an organizational capability including infrastructure, information systems, routines, procedures, management strategies and organizational culture that supports employee efforts to produce optimal performance. An

organization that has good procedures will achieve optimal performance, including databases, organizational charts, process manuals, strategies, routines and everything that makes the company's value greater than its material value. Customer Capital is the knowledge inherent in marketing channels and customer relationships which an organization develops through the course of business (Boekestein, 2006).

Value Added Intellectual Coefficient (VAIC)

The value added intellectual coefficient (VAIC™) developed by Pulic (2004) is an instrument for measuring a company's intellectual capital. This method provides information about the value creation efficiency of the company's tangible assets and intangible assets. This model starts with the company's ability to create value added (VA). VAIC ^{TM} is a method for measuring the performance of a company's intellectual capital. This approach is relatively easy and possible to do because it uses accounts in the company's financial statements.

Value added is the most objective indicator for assessing business success and shows the company's ability to create value. VA is influenced by the efficiency of Human Capital (HC) which is usually called VAHU, which shows the number of employee contributions to increasing the company's added value and Structural Capital (SC) which is usually called STVA. Another relationship to VA is capital employed (CE), which in this case is labeled VACA. VACA is an indicator for VA created by one unit of physical capital. VAIC ^{TM} is the sum of Capital Employed Efficiency and Intellectual Capital Efficiency which consists of Human Capital Efficiency and Structural Capital Efficiency. VAIC ^{TM} is the total efficiency or intellectual ability of the company. A high VAIC ^{TM} indicator reflects the company's ability to manage the potential of its intellectual capital in order to bring added value (Santoso, 2012). The advantage of VAIC™ is that the required data is relatively easy to obtain from various sources and types of companies. The data needed to calculate these various ratios are standard financial figures which are generally available from company financial reports (Wijayanti, 2010).

Research Hypothesis Development
Influence of VAHU on ROA

Resource based view theory explains that a company can gain competitive advantage when the company implements a strategy to create value rather than jointly implemented by competing companies. Companies can gain sustainable competitive advantage when the company creates strategies/products that are valuable and cannot be imitated by other companies (Barney, 1991) The knowledge of an organization's employees is implicit (Veltri and Silvestri, 2011). HC consists of employee knowledge, skills, talents, creativity, ideas and behavior. In this case, (J. Chen & Zhu, 2004) claim that skills are the most valuable form of HC because they are needed to complete the practical assignments of a company. They further suggested that employees could be trained according to the research objectives. Investment in human resources or human capital has a big influence on increasing company productivity. Value Added Human Capital indicates the ability of the workforce to produce value for the company from the funds spent on the workforce. The more value added produced by the company shows that the company has managed human resources optimally so as to produce a quality workforce which will ultimately improve the company's financial performance (Jafar 2014). Therefore, the following hypothesis is formulated:

H1. There is a positive relationship between VAHU and ROA.

The influence of STVA on ROA

Structural capital is the supporting infrastructure for human capital as facilities and infrastructure to support employee performance. So even though employees have high

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knowledge , if they are not supported by adequate facilities and infrastructure, the employee's abilities will not produce intellectual capital . An individual has high intelligence, but if the company has poor operating systems and procedures then it cannot achieve optimal performance and the existing potential cannot be utilized optimally. Structural capital provides companies with the ability to fulfill routine company processes and structures that support employee efforts to produce optimal intellectual performance (Devi et al., 2017). Research conducted (Akmil et al., 2019) in the production goods trading sub-sector listed on the Indonesia Stock Exchange then research (Devi et al., 2017) on electronics, automotive and component companies listed on the Indonesia Stock Exchange stated that structural capital value added has a positive effect on return on assets . With that, the second hypothesis is designed as follows:

H2. There is a positive relationship between STVA and ROA.

Effect of *VACA* on ROA
Utilizing the efficiency of capital employed can increase return on assets as a measure of a company's financial performance because the capital used is an asset value that contributes to the company's ability to generate income. The higher the value of capital employed means the higher the company's efficiency in using its physical capital so as to increase income, it is hoped that the company will be able to achieve its financial performance (Devi et al., 2017). Research conducted by (Fauziah, 2019), a case study at Bank Nagari, West Sumatra, stated that value added capital employed has a significant positive influence on return on assets. The same results were also found in research (Naufallita & Hendratmi, 2019) which conducted research on 24 Sharia People's Financing Banks and (Agusta & Radianto, 2019) on pharmaceutical companies listed on the Indonesian Stock Exchange showing that capital employed efficiency or what is usually called value added capital employed (VACA) has a significant positive effect on return on assets (ROA). Based on this description, the hypothesis that can be formulated is:

H3. There is a positive relationship between *VACA* and ROA.
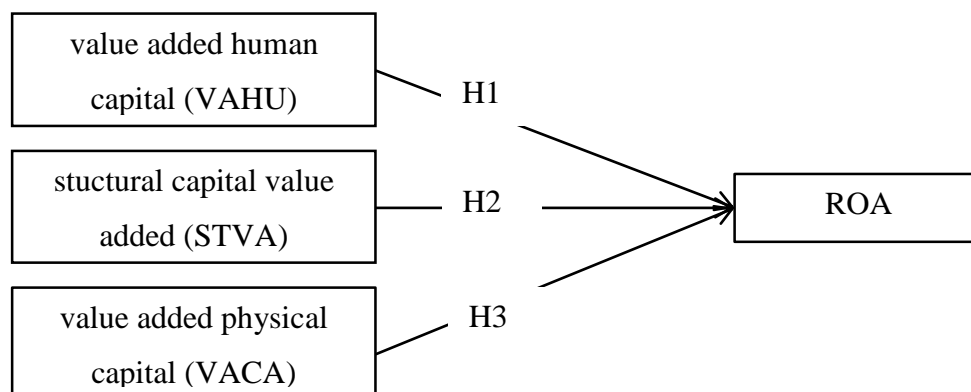
Figure 1. Research Model

The conceptual model consists of exogenous variables and endogenous variables. Exogenous variables are variables that cause changes or emergence of endogenous variables. In this research model, the exogenous variables are human capital value added (hereinafter abbreviated to "VAHU"), structural capital value added (hereinafter abbreviated to "STVA"), and physical capital value added (hereinafter abbreviated to "VACA"). The endogenous variable is company performance as measured by ROA.

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3. Method

Research design

This research uses a quantitative research approach. Quantitative research is research that basically uses a deductive-inductive approach. This approach starts from a theoretical framework, expert ideas, and researchers' understanding based on their experience, then developed into problems that are proposed to obtain justification (verification) or rejection in the form of field empirical data documents.

The quantitative approach aims to test theories, establish facts, show relationships between variables, provide statistical descriptions, estimate and predict results. Research designs that use a quantitative approach must be structured, standard , formal and designed as thoroughly as possible beforehand. The design is specific and detailed because the design is a design that will be implemented in research.

This research begins with activities exploring theories and concepts that will be used. This explanatory research activity is used to search for and limit research problems so that they are applicable and researchable.

The aim of this research is to confirm theoretical and empirical models built based on theories related to intellectual capital in this case Value Added Human Capital (VAHU), Structure Capital Value Added (STVA), and Value Added Capital Employed (VACA) with its relationship to company performance for manufacturing companies. It is hoped that this theoretical and empirical confirmation can contribute to the development of the theory built in this study. The approach that will be used in this research is a quantitative approach.

Population, Sample, and Sampling Techniques
Population

Population is a generalized area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn (Ghozali, 2018). In this research, the population is manufacturing companies registered on the IDX in 2017 - 2021.

Sample

Research sampling was carried out using the purposive sampling method. The purposive sampling method was chosen because the objectives of this research can only be achieved if a sample of companies using the criteria in Table 1 is used.

Table 1. Sample Selection Criteria

No	Sample selection criteria	Amount
1.	Data on companies registered on IDX for the 2017-2021 period	415
2.	Data on companies delisted from IDX during the 2017-2021 period	(20)
3.	Data on manufacturing companies that IPO after January 1 2017	(70)
4.	Data on companies with negative profits during the 2017-2020 period	(66)
	Company data that can be used as a sample	**259**

Research variable

The variables used in this research consist of 2 (two) forms, namely:
1. Exogenous variables are variables whose values are not influenced/determined by other variables in the model. In this research, the exogenous variables consist of Value Added

Human Capital (VAHU), Structure Capital Value Added (STVA), and Value Added Capital Employed (VACA).

2. Endogenous variables are variables whose values are influenced/determined by other variables in the model, where in this research the endogenous variable is company performance as measured by ROA.

Operational Definition of Variables

The operational variables in this study are given in Table 2.

Table 2. Operational Research Variables

No	Variable	Formulas	Source
1.	Firm Performance (Y)	$ROA = \dfrac{Net\ Profit}{Total\ Assset}$	(Brigham & Ehrhardt, 2017)
2.	Value Added Human Capital-VAHU (X1) VAHU shows how much VA can be generated with the funds spent on labor. This ratio shows the contribution made by every rupiah invested in HC to the organization's value added.	$VAHU = \dfrac{VA}{HC}$	(Soewarno & Tjahjadi, 2020)
3.	Structure Capital Value Added-STVA (X2) This ratio measures the amount of Structure Capital (SC) needed to produce Value Added (VA) and is an indication of how successful Structure Capital (SC) is in carrying out the value creation process for the company.	$STVA = \dfrac{SC}{VA}$	(Soewarno & Tjahjadi, 2020)
4.	Value Added Capital Employed-VACA (X3) VACA shows how much VA can be created by one unit of capital employed (CE). If one unit of CE can produce a greater return for a company then the company is able to utilize CE better.	$VACA = \dfrac{VA}{CA}$	(Soewarno & Tjahjadi, 2020)

Research Location and Time

This research was conducted in 2023 and the research object was manufacturing companies that *went public* and were listed on IDX for the 2017-2021 period .

Data Collection Procedures

This type of research data uses quantitative data and the research data source is collected from the annual financial reports of manufacturing companies listed on the Indonesia Stock Exchange (BEI) in the 2017 - 2021 period. The data source is obtained from financial reports accessed at www.idx.co.id, and download financial reports published from the official website of each company.

Data analysis technique
Descriptive Analysis

According to Ghozali (2018), descriptive analysis is used to describe data from each research variable and the data seen is the amount of data, minimum value, maximum value, average

value and standard deviation. The aim of descriptive analysis is to create a systematic, current and accurate picture of the facts, characteristics and relationships between the phenomena being studied.

Normality Test
According to Ghozali (2018), the normality test aims to test the regression model, the confounding or residual variables have a normal distribution. There are two ways to detect residuals that are normally distributed or not, namely by using graphic analysis and statistical analysis. Statistical analysis was carried out by looking at the kurtosis and skewness values of the residuals. If Zcount > Ztable, then the distribution is not normal. The next method is to use the non-parametric Kolmogrov-Smirnov (KS) statistical test. The residual distribution can be declared normal if the significance value is greater than 0.05 (sig > 0.05).

Multicollinearity Test
According to Ghozali (2018), the purpose of the multicollinearity test is to test whether the regression model has a correlation between independent (independent) variables. A good regression model should have no correlation between independent variables. Multicollinearity can be seen from the tolerance and opposite values and the variance inflation factor (VIF). A low tolerance value is the same as a high VIF value because VIF = 1/Tolerance. So, to detect whether there is multicollinearity by looking at the tolerance and VIF values. If tolerance is more than 0.1 and VIF is less than 10 then multicollinearity does not occur. However, if for example the program must be changed from SPSS to SmartPLS, the Tolerance value is not used and only the VIF value will be used.

Heteroscedasticity Test
According to Ghozali (2018), the heteroscedasticity test aims to find out whether there is a regression model where there is inequality of variance from the residue of one observation to another observation. A good model is the absence of heteroscedasticity. In this research, the method used to detect heteroscedasticity is using the Glejser Test. The Glejser test is carried out by testing the level of significance using the scatterplot graphic method between the predicted value of the dependent variable (ZPRED) and the residual (SRESID). If the significance value is > 0.05, it means there is homoscedasticity or does not show symptoms of heteroscedasticity, but if the significance value is < 0.05, it means there is heteroscedasticity.

Autocorrelation Test
According to Ghozali (2018), the autocorrelation test aims to test whether in the linear regression model there is a correlation between confounding errors in period t and confounding errors in period t-1 (previous). If autocorrelation occurs, it is called an autocorrelation problem. In this research, to determine whether there is autocorrelation or not, the Run Test is used by paying attention to the Asymp.Sig (2-tailed) section, where if the value is greater than 0.05 then it can be concluded that there is no autocorrelation, conversely if the value is smaller than 0 .05 then there is autocorrelation.

Model Feasibility Test
F test
According to Ghozali (2018), this test aims to assess the feasibility of the regression model that has been formed and show whether all independent variables have an influence on the dependent variable. This test is carried out by comparing the F table and calculated F values. In determining the F table value, the significance level used is 0.05 with degrees of freedom

(df) in the numerator = k-1 and df in the denominator = nk, where n is the number of respondents and k is the number of variables. The test criteria used are as follows:
a. If F count > F table, then H0 is rejected and H1 is accepted.
b. If F count < F table, then H0 is accepted and H1 is rejected.

Coefficient of Determination Test (R^2)
According to Ghozali (2018), the coefficient of determination is a value that describes the magnitude of the independent variable that explains the dependent variable, the values are zero and one. The greater the coefficient of determination, namely close to one, the better the independent variable explains the dependent variable. On the other hand, when the value of the coefficient of determination is small, it indicates that the ability of the independent variable to explain the dependent variable is limited.

Multiple Linear Regression Analysis
According to Sugiyono (2014), multiple linear regression analysis is a linear relationship between two or more independent variables and the dependent variable, the aim of which is to predict what the condition (rise and fall) of the dependent variable will be, if two or more independent variables as factors increase and decrease in value. Multiple linear regression analysis is aimed at showing the influence of the independent variables on the dependent variable and whether each independent variable is positively or negatively related. The multiple liner regression equation used is as follows:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + e$$

Information:
Y   : Return on Assets (ROA)
X1   : VAHU
b1   : VAHU regression coefficient with Return on Assets (ROA)
X2   : STVA
b2   : STVA Path Coefficient with Return on Assets (ROA)
X3   : VACA
b3   : VACA Path Coefficient with Return on Assets (ROA)
e : Influence outside the model

Hypothesis Test (T Test)
According to Ghozali (2018), this test aims to determine the significance of the relationship between variables, whether in the linear regression model, the independent variable partially has an influence on the dependent variable. This test is carried out by comparing the calculated t value with the t table for each variable, with the following criteria:
a. If t count > t table, then H0 is rejected and H1 is accepted, meaning the independent variable has an influence on the dependent variable (with a significance level of 5%).
b. If t count < t table, then H0 is accepted and H1 is rejected, meaning the independent variable has no influence on the dependent variable (with a significance level of 5%).

Test Equipment Used
To facilitate the research process, the entire data analysis process is carried out using a test tool with the help of the SPSS program. However, if the normality test results show that the data is not normally distributed, the test tool will be replaced with the smartPLS program.

4. Result and Discussion

Analisis Deskriptif

Tabel 3. Deskriptif Variabel Penelitian Tahun 2017-2021

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
ROA	259	.00	.36	.0512	.05232	.003
VAHU	259	.68	7.74	1.7175	.83758	.702
STVA	259	-.47	.87	.3243	.22196	.049
VACA	259	-1.64	3.46	.2834	.33202	.110
Valid N (listwise)	259					

Source: Data Olahan SPSS, 2023

In table 3, the results of descriptive statistical testing in the research are displayed. It was found that the average value of ROA and VACA was lower than the standard deviation, this shows that the companies in the Basic Industry and Chemical sectors that were sampled in this study had variability in the values of ROA and VACA. high, so that the samples vary or are not grouped. Meanwhile, VAHU and STVA have an average value that is higher than the standard deviation, this shows that the companies in the Basic Industry and Chemical sectors sampled in this study have low variability, so the samples are clustered.

Data Normality Test

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Y
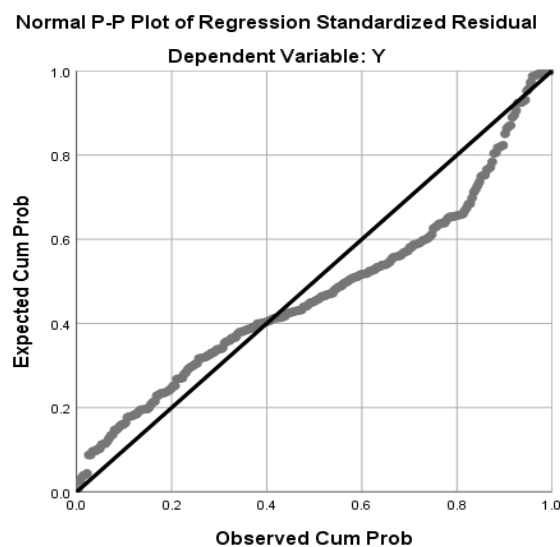
Source: SPSS Processed Data, 2023
Figure 2. Data Normality Test Results (P-Plot)

From Figure 2 above, it can be seen that the dots spread along a diagonal line over quite a distance. So the data looks abnormal. Therefore, to ensure whether the data meets normality or not, it can be done using another approach method, namely Kolmogorov Smirnov. Based on the results of the normality test using Kolmogorov Smirnov in Table 5 below, it can be seen that the statistical test value is 0.177. Meanwhile, the Asymp sig value is smaller than the alpha value, where $0.000 < 0.05$. These results can be stated that the research data is not normally distributed. So the research will continue using Smart PLS 3.

Table 4. Data Normality Test Results (Kolmogorov Smirnov Test)

		Unstandardized Residuals
N		259
Normal Parameters [a, b]	Mean	.0000000
	Std. Deviation	.04061230
Most Extreme Differences	Absolute	,154
	Positive	,154
	Negative	-.071
Statistical Tests		,154
Asymp. Sig. (2-tailed)		,000 [c]

Source: SPSS Processed Data, 2023

Multicollinearity Test

Table 5. Multicollinearity Test Results

Variable	VIF	Information
VAHU	4,072	Multicollinearity does not occur
STVA	4,110	Multicollinearity does not occur
VACA	1,022	Multicollinearity does not occur

Source: Smart PLS Processed Data, 2023

Based on the results of the multicollinearity test in Table 6, it can be seen that all independent variables in the study have a VIF < 10. It can be concluded that the regression model is free from symptoms of multicollinearity.

Multiple Linear Regression Analysis

Table 6. Results of Multiple Linear Regression Analysis

Variable	Original Sample (O)
VAHU	-0.088
STVA	0.681
VACA	0.280

Based on the results of multiple linear regression analysis in Table 7 above, the following regression equation can be obtained:

ROA = -0.088 VAHU + 0.681 STVA + 0.280 VACA

Coefficient of Determination Test (Adjusted R ^{2})

Table 7. Coefficient of Determination Test Results (Adjusted R^2)

	R Square	R Square Adjusted
ROA	0.397	0.390

Source: Smart PLS Processed Data, 2023

Based on the results of the coefficient of determination test in Table 8, it can be seen that the Adjusted R Square value is 0.390. So it can be concluded that the influence of VAHU, STVA,

and VACA on ROA is 39%. The remaining 61% is influenced by other variables not observed in this study.

Individual Parameter Significance Test (T Test)
Table 8. Individual Parameter Significance Test Results (t Test)

Variable	T count	T table	sig	α	Conclusion
VAHU	0.600	1.96879	0.549	0.05	Has a negative and insignificant effect
STVA	5,207	1.96879	0,000	0.05	Positive and significant influence
VACA	5,251	1.96879	0,000	0.05	Positive and significant influence

Source: Smart PLS Processed Data, 2023

Based on the results of the t test in Table 9, it can be seen that the variables STVA and VACA have a calculated t value that is greater than the t table and a significant value smaller than the alpha value, so it can be concluded that these variables have an influence and are significant on ROA. Meanwhile, the VAHU variable has a calculated t value that is smaller than the t table and its significant value is greater than the alpha value, so it can be concluded that these variables have no effect and are not significant on ROA.

Discussion
Influence of VAHU on ROA
The first hypothesis which states that there is a positive influence between value added human capital (VAHU) on return on assets (ROA) is rejected. Hypothesis testing that has been carried out shows different results where value added human capital (VAHU) has a negative and insignificant effect on return on assets (ROA). The results of this research are in line with research conducted by (Smriti & Das, 2017), (Devi et al., 2017) and (Fauziah, 2019). This indicates that the higher the company's value added human capital (VAHU) does not influence or guarantee that it can encourage increased financial performance, in this case the company's return on assets (ROA). The added value in the company budget that has been spent on employee expenses (in this case employee salaries) has not been able to improve financial performance or it could be said that the company has not been able to utilize human resources to improve financial performance. Human Capital has an insignificant negative effect, this indicates that employee management is inefficient or not yet optimal, such as work loads that are not in accordance with the salary received, then a lack of training or training which causes a decrease in employee productivity in generating profits, which will reduce the company's financial performance as seen from return on asset value. The aim of providing training is a process of developing employee potential, knowledge, skills or abilities to create added value and competitive advantage for the company. Different results occurred in research (Thakur, 2017), (Ozkan et al., 2017), (Pratama & Achmad, 2015), (Endri, 2020), (Siti Sendari, Dewi Isbanah, 2018) as well as research from (Amalia & Rokhyadi, 2020) shows that human capital efficiency or also called value added human capital (VAHU) has a significant positive influence on return on assets (ROA).

The influence of STVA on ROA
Based on statistical testing, it is known that Structural Capital Value Added (STVA) has a significant influence on a company's financial performance. This shows that the higher the STVA value obtained by a company, the more it will influence the increase in ROA for that company. This shows that structural capital in the form of existing knowledge within the company, can provide the company's ability to fulfill routine processes and structures that support employee efforts to produce overall business performance so that it can increase the

added value of the company which will then be able to influence the increase in the company's financial performance as seen from the company's ROA value. This research supports previous research (Okenwa Cy , O., Ndubuisi, AN, & Chidoziem, 2017), (Devi et al., 2017), (Kazhimy & Sulasmiyati, 2019) as well as research from (Akmil et al., 2019) which shows that structural capital efficiency or what is called structural capital value added (STVA) has a positive and significant influence on return on assets (ROA).

Effect of *VACA* on ROA

The third hypothesis which states that there is a significant positive influence between value added capital employed (VACA) on return on assets (ROA) is accepted. Hypothesis testing that has been carried out shows the same results where value added capital employed (VACA) has a positive and significant influence on return on assets (ROA). The results of this research are in line with research by (Agusta & Radianto, 2019) and (Naufallita & Hendratmi, 2019). This shows that capital management in the form of equity or own capital and net profit can increase the company's added value which in turn is able to improve the company's performance as seen from the company's return on assets (ROA) value so it can be said that the automotive and component sub-sector companies in this research has used available funds optimally to increase company profits and increase the efficiency of using its assets. In accordance with stakeholder theory, stakeholders will try to control the company's resources to improve its welfare. Different results occurred in research (Smriti & Das, 2017) on Pharmaceutical and Medicine companies on the Bombay Stock Exchange which stated that value added capital employed (VACA) was negatively correlated and not significant, meaning that the physical capital owned by the company was not able to create value. added in increasing company profits.

5. Conclusions

Based on the research results, it can be concluded that Structure Capital Value Added (STVA) and value added capital employed (VACA) have a positive and significant effect on return on assets (ROA). As for the findings in this research, value added human capital (VAHU) has a negative but not significant influence on return on assets (ROA). The implication of this research is that company management in the basic industry and chemical sub-sectors is expected to be able to manage employee resources and knowledge to produce good performance for company development and for investors and potential investors to pay more attention to the company's intellectual capital as a consideration in making investments. The limitation of this research is only using Return on Assets as a financial performance variable. Future research is expected to consider other financial performance such as market book to value and earnings per share.

References

Barney. (1991). Firm Resources RBV. *Journal of Management*, *17*(1), 410.

Bayraktaroglu, A. E., Calisir, F., & Baskak, M. (2019). Intellectual capital and firm performance: an extended VAIC model. *Journal of Intellectual Capital*, *20*(3), 406–425. https://doi.org/10.1108/JIC-12-2017-0184

Bhattacharjee, S., & Akter, R. (2022). Intellectual capital efficiency and firm performance: Evidence from an emerging knowledge-economy. *International Journal of Learning and Intellectual Capital*, *19*(1), 30–52. https://doi.org/10.1504/IJLIC.2022.119284

Brigham, E. F., & Ehrhardt, M. C. (2017). Financial Management - Theory and Practice, 15e. *Cengage Learning*, 1221.

Chen, J., & Zhu, Z. (2004). Measuring intellectual capital: A new model and empirical study. *Journal of Intellectual Capital*, *5*(1), 195–212. https://doi.org/10.1108/14691930410513003

Chen, Y. S. (2008). The positive effect of green intellectual capital on competitive advantages of firms. *Journal of Business Ethics*, *77*(3), 271–286. https://doi.org/10.1007/s10551-006-9349-1

Crupi, A., Cesaroni, F., & Di Minin, A. (2020). Understanding the impact of intellectual capital on entrepreneurship: a literature review. *Journal of Intellectual Capital*, *22*(3), 528–559. https://doi.org/10.1108/JIC-02-2020-0054

Firer, S., & Mitchell Williams, S. (2003). Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital*, *4*(3), 348–360. https://doi.org/10.1108/14691930310487806

Ghozali, Imam. (2018). Aplikasi Analisis Multivariate dengan Program IBM SPSS 25. Badan Penerbit Universitas Diponegoro: Semarang

Grant, R. M. (1991). Grant_1991. *Knowledge and Strategy*, 3–24.

Habib, A. M., & Dalwai, T. (2023). Does the Efficiency of a Firm's Intellectual Capital and Working Capital Management Affect Its Performance? In *Journal of the Knowledge Economy* (Issue 0123456789). https://doi.org/10.1007/s13132-023-01138-7

Habib, A.M., & Mourad, N. (2022). Analyzing the Efficiency of Working Capital Management: a New Approach Based on DEA-Malmquist Technology. *Operations Research Forum* , *3* (3). https://doi.org/10.1007/s43069-022-00155-7

Jafar , Waslina . (2014). The Influence of Intellectual Capital on Financial Profitability and Capital Gain of Company Shares (Empirical Study of Manufacturing Companies Listed on the IDX in 2010-2012). Hasanuddin University Thesis.

Kweh , QL , Chan , YC , & Ting , IWK (2013). 기사 (Article) 와 안내문 (Information) [. *The Electronic Library* , *34* (1), 1–5.

Maditinos , D. , Chatzoudes , D. , Tsairidis , C. , & Theriou , G. (2011). The impact of intellectual capital on firms' market value and financial performance. *Journal of Intellectual Capital* , *12* (1), 132–151. https://doi.org/10.1108/14691931111097944

Nadeem, M., Dumay, J., & Massaro, M. (2019). If You Can Measure It, You Can Manage It: A Case of Intellectual Capital. *Australian Accounting Review*, *29*(2), 395–407. https://doi.org/10.1111/auar.12227

Nkambule, N. A., Wang, W. K., Ting, I. W. K., & Lu, W. M. (2022). Intellectual capital and firm efficiency of US multinational software firms. *Journal of Intellectual Capital*, *23*(6), 1404–1434. https://doi.org/10.1108/JIC-02-2021-0041

Sirinuch Nimtrakoon. (2015). Intellectual capital, firms' market The relationship between value and financial performance Empirical evidence from the ASEAN. *Journal of Intellectual Capital*, *Vol. 16*(3), 587–618.

Soewarno, N., & Tjahjadi, B. (2020). Measures that matter: an empirical investigation of intellectual capital and financial performance of banking firms in Indonesia. *Journal of Intellectual Capital*, *21*(6), 1085–1106. https://doi.org/10.1108/JIC-09-2019-0225

Tan, H. P., Plowman, D., & Hancock, P. (2007). Intellectual capital and financial returns of companies. *Journal of Intellectual Capital*, *8*(1), 76–95. https://doi.org/10.1108/14691930710715079

Ur Rehman, A., Aslam, E., & Iqbal, A. (2022). Intellectual capital efficiency and bank performance: Evidence from islamic banks. *Borsa Istanbul Review*, *22*(1), 113–121. https://doi.org/10.1016/j.bir.2021.02.004

Wernerfelt, B. (1984). *A Resource-based View of the Firm*. *5*(2), 171–180.

Wijayanto, A., Suhadak, Dzulkirom, M., & Nuzula, N. F. (2019). the Effect of Competitive

Advantage on Financial Performance and Firm Value: Evidence From Indonesian Manufacturing Companies. *Russian Journal of Agricultural and Socio-Economic Sciences*, *85*(1), 35–44. https://doi.org/10.18551/rjoas.2019-01.04

Xu, J., & Liu, F. (2020). The impact of intellectual capital on firm performance: A modified and extended vaic model. *Journal of Competitiveness*, *12*(1), 161–176. https://doi.org/10.7441/joc.2020.01.10